

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) ~~A method for inserting a serial video data stream into a network transport digital signal formatted in accordance with a hierarchical digital transmission standard, said method comprising:~~

receiving one or more video data streams at an interface configured to insert serial video data and packetized digital video into a network transport digital signal formatted in accordance with a hierarchical digital transmission standard by way of first and second processing chains respectively;

processing via said first processing chain individual ones of said one or more video streams when individual ones of said one or more video streams comprise serial video data, wherein said processing comprises identifying horizontal scan lines in ~~segmenting~~ said serial video data stream, into a sequence of horizontal scan lines; extracting selected bits from said sequence of horizontal scan lines to form data payloads; identifying vertical blanking intervals in said serial video data stream, and computing a payload header of N bytes for each data payload, where N is a provisionable value, including a two byte time stamp counter value and an associated two byte CRC value;

encapsulating said horizontal scan lines and said payload header into generic framing procedure transparent mode (GFP-T) frames;

~~forming GFP-T frames with said data payloads and corresponding payload headers; and~~
mapping said GFP-T frames into said network transport digital signal in accordance with said hierarchical digital transmission standard; and

inserting GFP-T idle frames into said network transport digital signal during said identified vertical blanking intervals.

2-4. (Canceled)

5. (Original) The method of claim 1 wherein said serial video data stream comprises an ANSI/SMPTE 259M-1997 serial video data stream.

6. (Previously Presented) The method of claim 1 wherein mapping comprises:
mapping said GFP-T frames into a VC-3 6v virtual concatenation.

7. (Previously Presented) The method of claim 1 wherein mapping comprises:
mapping said GFP-T frames into a VT3-6v virtual concatenation.

8. (Currently Amended) ~~A method for extracting a serial video data stream from a network transport digital signal formatted in accordance with a hierarchical digital transmission standard, said method~~ comprising:

receiving at an interface, a network transport digital signal formatted in accordance with a hierarchical digital transmission standard comprising generic framing procedure transparent mode (GFP-T) frames that encapsulate one or more video streams, wherein said one or more video streams comprise at least one serial video data stream, packetized digital video, and idle GFP-T frames that identify vertical blanking intervals in said one or more video streams;

demapping GFP-T frames from a signal formatted in accordance with said hierarchical digital transmission standard;

deencapsulating said GFP-T frames to obtain payload headers and data payloads therein, and when said GFP-T frames comprise serial video data then removing idle GFP-T frames ~~differentiating said data payloads from said payload headers; and extracting~~ forming horizontal scan lines of said serial video data stream from said data payloads, ~~including inserting bytes into said data payloads;~~

buffering said horizontal scan lines in a buffer; and

recovering clock timing of said serial video data stream based on said horizontal scan lines from time-stamp counter values in said payload headers.

9. (Canceled)

10. (Previously Presented) The method of claim 8 wherein recovering clock timing comprises:

reading data out of said buffer in accordance with a locally generated clock; and
varying frequency of said locally generated clock in accordance with occupancy of said buffer.

11-13. (Canceled)

14. (Original) The method of claim 8 wherein said serial video data stream comprises an ANSI/SMPTE 259M-1997 serial video data stream.

15. (Previously Presented) The method of claim 8 wherein demapping comprises:
demapping said GFP-T frames from a VC-3-6v virtual concatenation.

16. (Original) The method of claim 8 wherein demapping comprises:
demapping said GFP-T frames from a VT3-6v virtual concatenation.

17. (Currently Amended) An apparatus ~~Apparatus for inserting a serial video data stream into a network digital signal formatted according to a hierarchical digital transmission standard, said apparatus~~ comprising:

a scan line delineation block configured to segment ~~that segments said~~ a serial video data stream into a sequence of horizontal scan lines, ~~extracts selected bits from the sequence of horizontal scan lines~~ to form data payloads and compute ~~computes~~ a payload header of N bytes for each data payload, where N is a provisionable value, said payload header including a time stamp counter value and an associated CRC value;

a mapper configured to identify vertical blanking intervals in said serial video data stream, encapsulate ~~that formats~~ said data payloads and corresponding payload headers into generic framing procedure transparent mode (GFP-T) [[GFP-T]] frames, ~~and maps~~ map said GFP-T frames into a digital signal in accordance with said hierarchical digital transmission

standard, and insert idle GFP-T frames into said digital signal during said identified vertical blanking intervals.

18-20. (Canceled)

21. (Currently Amended) The apparatus of claim 17 wherein said mapper is configured to map ~~maps~~ said GFP-T frames into a VC-3-6v virtual concatenation.

22. (Currently Amended) The apparatus of claim 17 wherein said mapper is configured to map ~~maps~~ said GFP-T frames into a VT3-6v virtual concatenation.

23. (Original) The apparatus of claim 17 wherein said serial video data stream comprises an ANSI/SMPTE 259M-1997 serial video data stream.

24. (Currently Amended) ~~Apparatus for extracting a serial video data stream from a network digital signal formatted according to a hierarchical digital transmission standard, said~~
An apparatus comprising:

a demapper configured to remove idle generic framing procedure transparent mode (GFP-T) frames from a network digital signal, demap ~~that demaps~~ GFP-T frames from said network digital signal ~~formatted according to said hierarchical digital transmission standard, deencapsulates~~ , deencapsulate said GFP-T frames to obtain data payloads and payload headers therein, ~~differentiates said data payloads from said payload headers, and forms~~ extract horizontal scan lines of a said serial video data stream from said data payloads ~~including the insertion of bytes into said data payloads;~~

a buffer ~~that stores~~ configured to store said extracted horizontal scan lines, said serial video data stream being clocked out of said buffer in accordance with said timing recovered from time-stamp counter values in said payload headers; and

a clock recovery system ~~that recovers~~ configured to recover timing of said serial video stream.

25. (Canceled)

26. (Previously Presented) The apparatus of claim 24 wherein said clock recovery system comprises:

a buffer occupancy measurement block that measures occupancy of said buffer, said timing being adjusted in accordance with said measured occupancy.

27-29. (Canceled)

30. (Currently Amended) The apparatus of claim 24 wherein said demapper is configured to demap said serial video data stream which comprises an ANSI/SMPTE 259M-1997 serial video data stream.

31. (Currently Amended) The apparatus of claim 24 wherein said demapper is configured to demap ~~demaps~~ said GFP packets from a VC-3-6v virtual concatenation.

32. (Currently Amended) The apparatus of claim 24 wherein said demapper is configured to demap ~~demaps~~ said GFP packets from a VT3-6v virtual concatenation.

33-37. (Canceled)

38. (Currently Amended) ~~Apparatus for inserting a serial video data stream into a network transport digital signal formatted according to a hierarchical digital transmission standard, said~~ An apparatus comprising:

means for receiving one or more video data streams at an interface configured to insert serial digital video and packetized digital video into a network transport digital signal formatted in accordance with a hierarchical digital transmission standard by way of first and second processing chains respectively;

means for processing via said first processing chain individual ones of said one or more video streams when individual ones of said one or more video streams comprise serial digital video, wherein said means for processing via said first processing chain comprises:

means for identifying horizontal scan lines in said serial digital video ~~means for segmenting said serial video data stream into a sequence of horizontal scan lines;~~

means for identifying vertical blanking intervals in said serial digital video;

~~means for extracting selected bits from said sequence of horizontal scan lines to form data payloads;~~

means for computing a payload header of N bytes for each data payload, where N is a provisionable value, including a two byte time stamp counter value and an associated two byte CRC value;

means for encapsulating said identified horizontal scan lines and said payload headers into generic framing procedure transparent mode (GFP-T) frames;

~~means for forming GFP-T frames with said data payloads and corresponding payload headers; and~~

means for mapping said GFP-T frames into a network transport digital signal in accordance with said hierarchical digital transmission standard; and

means for inserting GFP-T idle frames into said network transport digital signal during said identified vertical blanking intervals.

39. (Currently Amended) ~~Apparatus for extracting a serial video data stream from a digital signal formatted in accordance with a hierarchical digital transmission standard, said~~ An apparatus comprising:

means for receiving at an interface, a network transport digital signal formatted in accordance with a hierarchical digital transmission standard comprising generic framing procedure transparent mode (GFP-T) frames that encapsulate one or more video streams, wherein said one or more video streams comprise serial digital video, and/or packetized digital video, and idle GFP-T frames that identify vertical blanking intervals in said one or more video streams;

means for demapping said GFP-T frames from ~~[[a]]~~ said network transport digital signal formatted in accordance with said hierarchical digital transmission standard;

means for deencapsulating said GFP-T frames to obtain payload headers and data payloads therein;

means for removing idle GFP-T frames from said serial digital video;

~~means for differentiating said data payloads from said payload headers;~~

means for extracting ~~forming~~ horizontal scan lines of said serial video data stream from said data payloads, ~~including means for inserting bytes into said data payloads;~~

means for buffering said horizontal scan lines in a buffer; and

means for recovering clock timing of said serial video data stream based on said horizontal scan lines from time-stamp counter values in said payload headers.

40. (Currently Amended) The method of claim 1 wherein identifying said vertical blanking intervals is based on end of active video (EAV) and start of active video (SAV) framing bytes, and wherein said processing further comprises ~~said extracting bits step comprising removing End of Active Video (EAV) and Start of Active Video (SAV)~~ EAV and SAV bytes from said ~~sequence of~~ horizontal scan lines.

41. (Currently Amended) The method of claim 1 ~~[[40]]~~ wherein said payload header is 4 bytes in length and includes said time stamp counter value and associated CRC value.

42. (Currently Amended) The method of claim 8 wherein extracting further comprises generating end of active video (EAV) and start of active video (SAV) framing bytes if said EAV and SAV framing bytes were previously removed and inserting said EAV and SAV framing bytes into said data payloads ~~said forming step comprises inserting End of Active Video (EAV) and Start of Active Video (SAV) bytes into said data payloads to form said sequence of horizontal scan lines.~~

43. (Previously Presented) The method of claim 8 wherein said payload headers are 4 bytes in length and include said time stamp counter values.

44. (Previously Presented) The apparatus of claim 17 wherein said scan line delineation block further removes End of Active Video (EAV) and Start of Active Video (SAV) bytes from said sequence of horizontal scan lines.

45. (Currently Amended) The apparatus of claim 17 ~~[[44]]~~ wherein said scan line delineation block is configured to compute said payload header ~~[[is]]~~ comprising 4 bytes in length and including ~~includes~~ said time stamp counter value and said associated CRC value.

46. (Currently Amended) The apparatus of claim 24 wherein said demapper is further configured to insert ~~inserts~~ End of Active Video (EAV) and Start of Active Video (SAV) bytes into said data payloads to form said ~~sequence of~~ horizontal scan lines.

47. (Cancelled)

48. (New) The method of claim 1, further comprising processing via said second processing chain individual ones of said one or more video streams when individual ones of said one or more video streams comprise packetized digital video, wherein processing via said second processing chain further comprises:

removing 8b/10b encoding from said packetized digital video;
encoding said packetized digital video into 64b/65b superblocks; and
encapsulating said superblocks into GFP-T frames.

49. (New) The method of claim 48, further comprising multiplexing said superblocks with said horizontal scan lines prior to encapsulation based on a mode of said interface.

50. (New) The method of claim 8, further comprising removing 64b/65b encoding from said deencapsulated data payloads that comprise GFP-T superblocks to obtain decoded data,

buffering said decoded data, and 8b/10b encoding said decoded data when said GFP-T frames comprise packetized digital video.

51. (New) The method of claim 50, further comprising multiplexing said 8b/10b encoded data with said horizontal scan lines based on a mode of said interface.

52. (New) The apparatus of claim 17, further comprising:
a decoder configured to remove 8b/10b encoding from said packetized digital video; and
an encoder configured to encode said decoded packetized digital video into 64b/65b superblocks,
wherein said mapper is configured to encapsulate said superblocks into GFP-T frames.

53. (New) The apparatus of claim 52, further comprising a multiplexer configured to multiplex said superblocks with said horizontal scan lines prior to encapsulation based on a mode of said interface.

54. (New) The apparatus of claim 24, further comprising:
a decoder configured to remove 64b/65b encoding from deencapsulated data payloads comprising GFP-T superblocks to obtain decoded data;
a clock tolerance compensation FIFO configured to insert or drop comma characters in said decoded data; and
an encoder configured to 8b/10b encode said decoded data.

55. (New) The apparatus of claim 54, further comprising a multiplexer configured to multiplex said 8b/10b encoded data with said serial video data stream being clocked out of said buffer based on a mode of said interface.

56. (New) The apparatus of claim 38, further comprising means for processing via said second processing chain individual ones of said one or more video streams when individual ones

of said one or more video streams comprise packetized digital video, wherein said means for processing via said second processing chain comprises:

- means for removing 8b/10b encoding from said packetized digital video;
- means for encoding said packetized digital video into 64b/65b superblocks; and
- means for encapsulating said superblocks into GFP-T frames.

57. (New) The apparatus of claim 56, further comprising means for multiplexing said superblocks with said horizontal scan lines prior to encapsulation based on a mode of said interface.

58. (New) The apparatus of claim 39, and further comprising:

- means for removing 64b/65b encoding from deencapsulated data payloads that comprise GFP-T superblocks to obtain decoded data;
- means for buffering said decoded data; and
- means for 8b/10b encoding said decoded data.

59. (New) The apparatus of claim 58, further comprising means for multiplexing said 8b/10b encoded data with said buffered horizontal scan lines based on a mode of said interface.